

Claims:

1. A method of modifying an analogue video signal to impair analogue to digital conversion of the signal, the signal comprising a plurality of horizontal synchronization pulses, each adjacent a respective back porch, the method comprising:
- 5 receiving an original video signal for modification;
modifying at least one of the horizontal synchronization pulses from its original form to have a greater or a smaller amplitude over at least a part of the pulse width; and/or
- 10 modifying the region of the signal following the horizontal synchronization pulse, either in the back porch or adjacent to it, from its original form; and
outputting the modified video signal, wherein the modified video signal is such that the modified video signal interferes with the operation of an analogue to digital video conversion system to such an extent that, if a digital signal is output, the output digital signal has a reduced quality on playback in comparison to the original analogue video signal.
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2. A method according to claim 1, comprising consulting an analogue to digital conversion device response model, and modifying the amplitude of the synchronisation pulse, or modifying the region of the signal following the horizontal pulse, in dependence on the analogue to digital conversion device response model.
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3. A method according to claim 1 or 2, comprising consulting a display device response model, and modifying the amplitude of the synchronisation pulse, or modifying the region of the signal following the horizontal pulse, in dependence on the display device model.
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4. A method according to claim 1, 2 or 3, comprising consulting several response models and varying the modifications over time.
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5. A method according to any preceding claim, wherein in the modifying step, the amplitude of the synchronisation pulse is adjusted to be in the range -280mV to -150mV.
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6. A method according to any preceding claim, wherein in the modifying step, the amplitude of the synchronisation pulse is adjusted to be in the range -250mV to -200mV.
- 10 7. A method according to any of claim 5 or 6, wherein in the modifying step, the amplitude of the synchronisation pulse is adjusted over a duration of about 30% to 100% of the pulse width.
8. A method according to any of claims 1 to 4, wherein in the modifying step, the amplitude of the synchronisation pulse is adjusted to be in the range -320mV to -600mV.
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9. A method according to any of claims 1 to 4, wherein in the modifying step, the amplitude of the synchronisation pulse is adjusted to be in the range -350mV to -450mV.
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10. A method according to any of claims 8 or 9, wherein in the modifying step, the amplitude of the synchronisation pulse is adjusted over a duration of about 30% to 90% of the pulse width.
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11. A method according to any of claims 8, 9 or 10, wherein in the modifying step, the amplitude of the synchronisation pulse is adjusted only after the beginning of the synchronisation pulse.
- 30 12. A method according to any preceding claim, wherein the back porch of the signal is modified by adjusting the signal level away from the 0V level.

13. A method according to claim 12, wherein the back porch of the signal is modified by adding a pulse of positive or negative amplitude in the range 30mV to 200mV.
- 5 14. A method according to claim 13, wherein the amplitude of the pulse is in the range 50 to 150mV.
- 15 15. A method according to claim 13 or 14, wherein the pulse has a duration of between 250ns and 4µs.
- 16 16. A method according to any of claims 13 to 15, wherein the pulse occurs immediately after the synchronisation pulse.
- 17 17. A method according to any of claims 13 to 15, wherein the pulse occurs 4.8µs after the falling edge of the synchronisation pulse.
- 18 18. A method according to any preceding claim, wherein the region of the signal following the synchronisation pulse is modified by inserting a pulse into lines which appear in the overscan region of the signal.
- 20 19. A method according to claim 18, wherein the pulse is inserted between 10µs and 30µs after the falling edge of the synchronisation pulse.
- 25 20. A method according to claim 18 or 19, wherein the pulse has a duration of between 10 µs and 58 µs.
- 21 21. A method according to claim 18, 19 or 20, wherein the pulse has a duration of between 15µs and 35 µs.
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22. A method according to any preceding claim comprising inputting the output modified video signal into an analogue to digital converter.
23. A method according to any preceding claim wherein the amplitude
5 of the modifications are varied over time between zero, at which the modified signal is substantially identical to an unmodified signal, and full scale at which the modifications are fully present.
24. A computer program product, comprising computer readable code
10 which when executed on a computer, causes the computer to perform the steps of any of method claims 1 to 23.
25. An apparatus arranged to modify an analogue video signal to impair analogue to digital conversion of the signal, the signal comprising a
15 plurality of horizontal synchronization pulses, each adjacent a respective back porch, the apparatus comprising:
an input for receiving an original video signal for modification;
means for modifying at least one of the horizontal synchronization pulses from its original form to have a greater or a smaller amplitude over
20 at least a part of the pulse width; and/or
means for modifying the region of the signal following the horizontal synchronization pulse, either in the back porch or adjacent to it, from its original form; and
an output for outputting the modified video signal, wherein the
25 modified video signal is such that the modified video signal interferes with the operation of an analogue to digital video conversion system to such an extent that, if a digital signal is output, the output digital signal has a reduced quality on playback in comparison to the original analogue video signal.
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26. An apparatus in accordance with claim 25, in which the characteristics of the modifications can be set remotely.

27. A modified video signal comprising a plurality of horizontal synchronization pulses, each adjacent a respective back porch, wherein at least one of the horizontal synchronization pulses is modified from its original form to have a greater or a smaller amplitude over at least a part of the pulse width, and/or the region of the signal following the horizontal synchronization pulse, either in the back porch or adjacent to it, is modified from its original form, such that the modified video signal interferes with the operation of an analogue to digital video conversion system to such an extent that, if a digital signal is output, the output digital signal has a reduced quality on playback in comparison to the original analogue video signal.

28. A method of modifying a signal, generated by the method of any of claims 1 to 23, such that analogue to digital conversion can take place, the method comprising;

receiving a video signal;
determining which of the amplitude of the synchronisation pulse, and the region following the synchronisation pulse have been modified;
and
modifying the amplitude of the synchronisation pulse, and/or modifying the region following the synchronisation pulse, in dependence on the determining step, to allow analogue to digital conversion.

29. A method according to claim 28, comprising recording the modified signal onto a storage medium.

30. An apparatus arranged to modify a signal, generated by the method of any of claims 1 to 23, such that analogue to digital conversion can take place, the method comprising;
an input for receiving a video signal;

an analyser for determining which of the amplitude of the synchronisation pulse, and the region following the synchronisation pulse have been modified; and

means for modifying the amplitude of the synchronisation pulse, and/or modifying the region following the synchronisation pulse, in dependence on the determination of the analyser, to allow analogue to digital conversion.

31. A modified video signal in which the amplitude of a horizontal sync pulse is altered, either by increasing its amplitude over at least part of the duration of the pulse, or by reducing its amplitude over at least part of the duration of the pulse, and/or in which the level of the signal in at least part of the back porch is altered, such that the signal when viewed on a standard television shows an image of acceptable viewability, but, when applied to a video capture system either it cannot be properly converted or it is converted to a digital signal which cannot be played or which, when played, shows an image which is not of acceptable viewability.

32. A modified video signal in accordance with claims 27 or 31, in which at least some of the characteristics of the alterations have been determined during or following a conversion impairment optimisation process.

33. A modified video signal according to any of claims 27, 31 or 32, in which the original video signal and the modifications to the video signal are generated at the same time and combined to form a resulting signal for output.